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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,237

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EXAMINER

LEE, DORIS L

ART UNIT

PAPER NUMBER

1796

NOTIFICATION DATE

DELIVERY MODE

03/03/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/590,237	Applicant(s) SOYAMA ET AL.	
	Examiner Doris L. Lee	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The new grounds of rejection set forth below are necessitated by applicant's amendment filed on December 22, 2009. In particular, claim 1 which has been amended to include the new limitations "wherein the peak corresponding to the particle size distribution of large particles is greater than the peak corresponding to the particle size of the smaller particle" (this is supported by Figures 3-5 of the specification). This combination of limitations was not present in the original claims. Thus, the following action is properly made final.

2. All outstanding objections and rejections, except for those maintained below, are withdrawn in light of applicant's amendment filed on December 22, 2009.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-2, 8-9 and 12-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hwang et al (WO 99/37592)** in view of **Goodwin (US 3,331,671)** and **Kulkarni (Studies on Fly Ash-Filled Epoxy-Cast Slabs Under Compression, Journal of Applied Polymer Science Vol. 84, 2404-2410 (2002))**.

Regarding claims 1 and 8, Hwang '592 teaches a composition comprising a polycarbonate type resin (page 8, line 34) and fly ash particles (page 4, line 9) having a

Art Unit: 1796

mean particle size of less than 10 microns (page 5, line 27) and all the particles have a size smaller than 20 microns (page 12, Table 2).

Fly ash particles are generally 50 % silicon dioxide and 25 % aluminum oxide as evidenced by Goodwin (col. 4, lines 24-30).

However, Hwang '592 fails to teach that the fly ash has two peaks in its particle size distribution wherein the peak corresponding to the particle size distribution of large particle is greater than the peak corresponding to the particle size distribution of smaller particles.

Kulkarni teaches a fly ash composition in which there is a bimodal distribution in which the portion of the large particles is greater than the peak corresponding to the particle size distribution of smaller particles. (page 2405, graph).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the fly ash of Hwang '592 with the bimodal distribution of Kulkarni. One would have been motivated to do so in order to receive the expected benefit of using a fly ash which, according to the bimodal theory of sphere-sphere packing, the distribution will yield close to maximum packing (Kulkarni, page 2405) and therefore more fly ash can be more evenly and more effectively distributed throughout the resin material. They are combinable because they are concerned with the same field of endeavor, namely fly ash.

While there is no disclosure that the resin is a flame-retardant resin as presently claimed, applicants attention is drawn to MPEP 2111.02 which states that "if the body of a claim fully and intrinsically sets forth all the limitations of the claimed invention, and

Art Unit: 1796

the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction". Further, MPEP 2111.02 states that statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the purpose or intended use results in a structural difference between the claimed invention and the prior art. Only if such structural difference exists, does the recitation serve to limit the claim. If the prior art structure is capable of performing the intended use, then it meets the claim.

It is the examiner's position that the preamble does not state any distinct definition of any of the claimed invention's limitations and further that the purpose or intended use, i.e. a flame retardant resin, recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art composition of modified Hwang '592 and further that the prior art structure which is a composition identical to that set forth in the present claims is capable of performing the recited purpose or intended use.

Regarding claims 2, Hwang '592 teaches that the amount of fly ash in the polycarbonate is between 20 phr to 500 phr by weight (page 9, lines 5-15).

Regarding claims 12-13, Hwang '592 teaches a flame retardant molding material and a molding article made from the composition according to Claim 1 (page 9, lines 32-38).

Art Unit: 1796

5. **Claims 5-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hwang et al (WO 99/37592)** in view of **Goodwin (US 3,331,671)**, **Kulkarni (Studies on Fly Ash-Filled Epoxy-Cast Slabs Under Compression, Journal of Applied Polymer Science Vol. 84, 2404-2410 (2002))**, **Chang (US 5,505,766)** and **Nomura et al (JP 2001-220193, see machine translation)**

The discussion regarding Hwang '592, Goodwin and Kulkarni in paragraph 4 above is incorporated here by reference.

Regarding claims 5-7, Hwang '592 teaches that the fly ash can be used in a polymeric resin as discussed in the rejection of claim 1 above. It is noted that Hwang teaches that fly ash, which is usually created as a byproduct of coal fired electrical power plants, can also be used as filler in roadways or concrete pavements (page 1, lines 9-15). As evidenced by Chang, fly ash contains heavy metal contaminants such as nickel, arsenic and chromium (col. 1, lines 20-25).

However, Hwang '592 fails to teach the addition of an elution preventer such as ferrous sulfate monohydrate.

Nomura teaches a cement composition which uses refuse incineration ash as a raw material ([0002]) and has chromium which can contaminate the environment ([0003]) uses the monohydrate of ferrous sulfate as a elution preventer ([0007]).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the monohydrate of ferrous sulfate as taught by Nomura in the composition of modified Hwang '592. One would have been motivated to do so in order to receive the expected benefit of preventing the leeching of chromium from the fly ash

Art Unit: 1796

in the composition into the environment (Kitano, [0002] and [0007]). They are combinable because they are both concerned with compositions containing fly ash. Absent objective evidence to the contrary and based upon teaching of the prior art, there would have been a reasonable expectation of success.

6. **Claims 9-10 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hwang et al (WO 99/37592)** in view of **Goodwin (US 3,331,671)**, **Kulkarni (Studies on Fly Ash-Filled Epoxy-Cast Slabs Under Compression, Journal of Applied Polymer Science Vol. 84, 2404-2410 (2002))** and **Hwang (US 5,047,145)**.

The discussion regarding Hwang '592, Goodwin and Kulkarni in paragraph 4 above is incorporated here by reference.

Regarding claims 9 and 10, Hwang '592 does not explicitly teach the composition of the clean fly ash in the composition, however, Hwang '592 does teach that the fly ash was cleaned by the process elucidated in Hwang '145 (page 10, line 14).

Huang '145 teaches that the clean fly ash contains 59.30 % SiO₂, 29.41% Al₂O₃, and Fe₂O₃, TiO₂, MgO and CaO as further components (col. 5, line 45-50), therefore the content of silicon dioxide and aluminum oxide is 88.71 %.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a fly ash with the compositional makeup of Huang '145 in the composition of Hwang '592. One would have been motivated to do so because Hwang '592 specifically directs one's attention to Huang '145 and one would have fly ash with increased value components (Huang '145, col. 1, lines 5-10). They are combinable because they are concerned with the same field of endeavor, namely fly ash.

Regarding claim 14, Hwang '592 teaches that the plastic resin can be a combination of plastics, many of which are not polycarbonates (page 7, line 50- page 8, line 35).

7. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Hwang et al (WO 99/37592)** in view of **Goodwin (US 3,331,671)**, **Kulkarni (Studies on Fly Ash-Filled Epoxy-Cast Slabs Under Compression, Journal of Applied Polymer Science Vol. 84, 2404-2410 (2002))**, **Chang (US 5,505,766)** and **Nodera et al (US 5,837,757)**.

The discussion regarding Hwang '592, Goodwin and Kulkarni in paragraph 4 above is incorporated here by reference.

Regarding claim 11, Goodwin teaches that the plastic matrix can include any plastic or elastomeric materials (page 7, lines 30-34) include polymers which are fluorinated (page 8, line 20-25), but fails to teach that the polymer matrix contains a fiber-formable fluorinated polymer in an amount of 0.05 to 5 weight % based on the total flame-retardant resin composition.

Nodera teaches a flame-retardant polycarbonate resin (Abstract) which uses a fibril-forming polytetrafluoroethylene in an amount from 0.01 to 1 part by weight relative to 100 parts by weight of the composition (col. 11, lines 20-40).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the fibril-forming polytetrafluoroethylene in an amount from 0.01 to 1 part by weight relative to 100 parts by weight of the composition as taught by Nodera in the composition of Goodwin. One would have been motivated in order to receive the

Art Unit: 1796

expected benefit of having a dripping inhibitor (Nodera, col. 11, line 29-30). They are combinable because they are concerned with the same field of endeavor, namely polycarbonate resins. Absent objective evidence to the contrary and based upon teachings of the prior art, there would have been a reasonable expectation of success.

Response to Arguments

8. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. It is noted that many references are carried over from the previous office action, however as all the arguments presented pertain to Chiang (US 4,560,712) and this reference is no longer used in the above rejections, no pertinent arguments remain.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1796

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Doris L. Lee whose telephone number is (571)270-3872. The examiner can normally be reached on Monday - Thursday 7:30 am to 5 pm and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Doris L Lee/
Examiner, Art Unit 1796

Application/Control Number: 10/590,237

Page 10

Art Unit: 1796

/Vasu Jagannathan/

Supervisory Patent Examiner, Art Unit 1796